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THE NORTHWESTERN BOUNDARY BETWEEN THE UNITED STATES AND CANADA.

BY

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During the progress of the survey by the U. S. Geological Survey of a portion of the boundary line between Idaho and Montana it became necessary to identify a point on the boundary between the United States and Canada, so as to locate properly the terminal point of the line under survey. The nearest international boundary monument that existed was the Mooyie Trail monument, which was about $8\frac{1}{2}$ miles west of the point of intersection. Previously, in the survey of the boundary line between Idaho and Washington, no direct connection with any monument marking the international boundary was attempted, as the nearest points marked were one near the Columbia River, about 13 miles west, and one near the Kootenai River, about 20 miles east. Similarly, in extending a guide meridian north from the 13th Standard Parallel in Idaho, there was no international boundary monument sufficiently near to permit of a connection being made. Thus, in the above-mentioned localities and many others, it is impossible to locate the line which separates the domain of the United States from that of Canada. In view of these conditions, and, further, that recently there has arisen a controversy in regard to the location of valuable mines in the Mount Baker mining district in western Washington—certain parties claiming that the mines are in the United States and others maintaining that they are in Canada—it seems appropriate to present a brief summary of the facts relating to the survey of our northwestern boundary.

The northern boundary, generally, has been the subject of much discussion and dissension between the representatives of the two countries interested. There have been recognized in the various treaties three distinct portions of this boundary, and many commissions have been organized from time to time for the survey and marking of the line.

The northeastern boundary, extending from the eastern coast of Maine to the Lake of the Woods, was agreed upon by the treaty of peace concluded at Ghent, December 24, 1814, and was eventually surveyed and marked in a satisfactory manner.

The portion of the boundary between the northwest point of the Lake of the Woods and the summit of the Rocky Mountains, along the 49th Parallel, was the subject of the second article of the convention between the United States and Great Britain held October 20, 1818. This was surveyed by the Northern Boundary Commission in 1872 to 1876 and marked in a substantial manner, 388 monuments having been established in a distance of about 861 miles ($7\frac{1}{2}$ miles from the northwest point of the Lake of the Woods south to the 49th Parallel and $853\frac{1}{3}$ miles west along the 49th Parallel to the summit of the Rocky Mountains).

The portion of the boundary west of the summit of the Rocky Mountains is usually referred to as the Northwestern Boundary. It includes a land portion extending along the 49th Parallel to the sea coast at Point Roberts and a water portion extending through the waters of Georgia, Haro and Juan de Fuca Straits to the Pacific Ocean. The definition of the water part of the boundary line was agreed upon in a treaty proclaimed August 5, 1846, but it was not until ten years afterwards that Congress made provision for a commission on the part of the United States to unite with a similar commission on the part of Great Britain to survey the northwestern boundary and establish the necessary monuments. The joint commissioners having disagreed as to the water boundary, it was finally settled in 1871 by arbitration. Emperor William I. of Germany was chosen as arbiter, and he decided in favor of the American contention. In the meantime, operations were commenced on the land portion of the line; but it is evident that thorough work was not contemplated, from an agreement entered into between the commissioners in regard to the conduct of the field operations. This agreement was as follows:

After discussing plans for determining and marking the line as far eastward as the Cascade Mountains, it was concluded to be inexpedient at the present time, in consequence of the great expense, consumption of time, and the impracticable nature of the country, to mark the whole boundary by cutting a track through the dense forest.

It was therefore agreed to ascertain points on the line by the determination of astronomical points at convenient intervals on or near the boundary and to mark such astronomical stations, or points fixed on the parallel forming the boundary, by cutting a track of not less than 20 feet in width on each side for the distance of half a mile or more, according to circumstances. Further, that the boundary be determined and similarly marked where it crosses streams of any size, permanent trails, or any striking natural feature of the country.

In the vicinity of settlements on or near the line it is deemed advisable to cut the track for a greater distance and to mark it in a manner to be determined hereafter.

Under the above agreement, which was subsequently applied to the whole line, work was prosecuted through the field seasons of 1858, 1859, and 1860, the results being that, of the entire boundary, 410 miles long, 190 miles were cleared and marked and 220 miles were not surveyed or marked in any way. The principal unsurveyed and unmarked portions are indicated below:

From summit of Rocky Mountains westward to Kishenehn Creek.....	13 miles.
Flathead River to Wigwam River.....	13 "
Wigwam River to point 6 miles east of Kootenai River..	14 "
Point 4 miles west of Kootenai River to Yaak River....	17 "
Yaak River to Mooyie River.....	24 "
Mooyie Trail to Kootenai River.....	14 "
Kootenai River to Kootenai Mountains.....	25 "
Kootenai Mountains to Clark Fork.....	9 "
Clark Fork to Columbia River.....	11 "
Similkameen River to Naisnuloh Station.....	12 "
Naisnuloh Station to Paseyten River.....	24 "
Paseyten River to Chuchuwanten Creek.	6 "
Chuchuwanten Creek to Skagit River.....	17 "
Stream 6 miles west of Senehsay or Selacee River to De Lacy Trail from Whatcom to Fort Hope.....	16 "

From Columbia River to Similkameen River, a distance of about 96 miles, the line was marked by sixty-seven monuments, although even in this distance there are thirteen unmarked intervals greater than 2 miles, including three greater than 3 miles.

From Skagit River to stream 6 miles west of Senehsay or Selacee River, a distance of about 30 miles, there are intervals of about $1\frac{1}{2}$, 3, 5, 4 and 6 miles in which there are no monuments.

From the De Lacy Trail to Point Roberts, a distance of about 46 miles, the line was well marked by forty-two iron pillars and one obelisk at Point Roberts. All other monuments established on the line were piles of stone or earth.

The Civil War followed soon after the completion of the field work of the Northwestern Boundary Survey, and probably on this account no report of the operations of the survey was published, although there is evidence that such a report was prepared.

No trace can be found of the manuscript of this report, however, although careful search has been made through the Departments at Washington and the files of Congress.

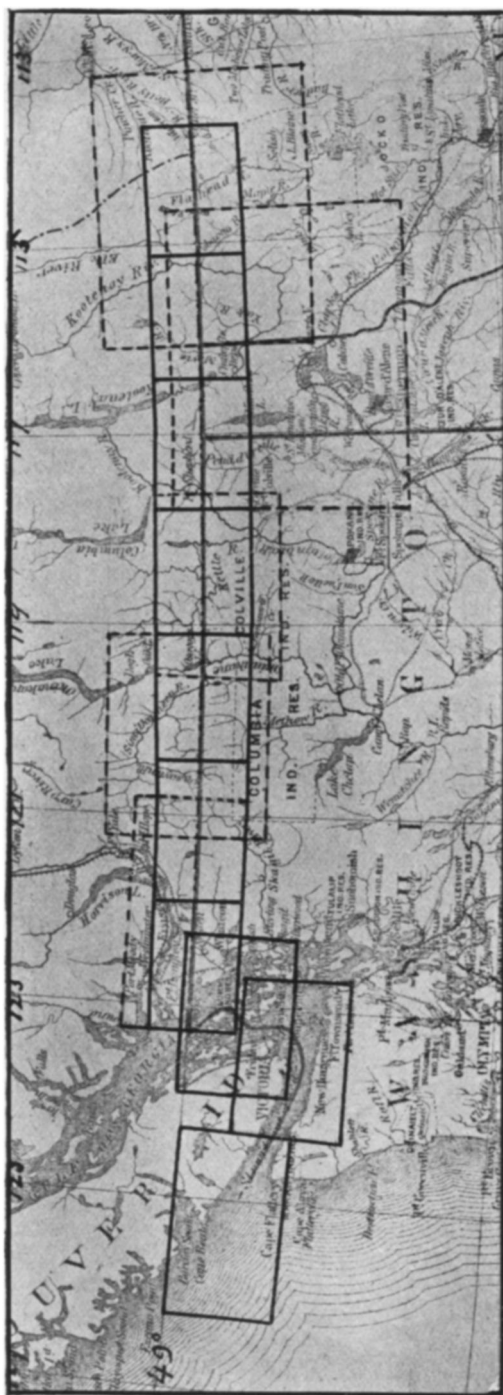
Various manuscript maps relating to the Northwestern Boundary

are on file at the State Department. The most important are ten detailed sheets, seven relating to the land portion of the boundary and three to the water portion. On the former are shown trails, timber, camps, monuments and vistas cut through the forest. These sheets are carefully drawn on the scale of 1:120,000, or about 1.89 miles to one inch, the relief being represented by hachures. A conventional sign indicating the timbered areas is also introduced.

In addition to the detailed map, there are other maps and tracings, one set having some geographic value, being a compilation from original sketches, notes, and surveys. These maps include the areas covered by the detailed maps and considerable territory besides, evidently having been compiled from observations secured by various members of the Northwest Boundary Survey while making journeys and reconnaissances in connection with the immediate work in hand. The relief is shown by sketch contours, and the accuracy obtained, as indicated by comparison with recent topographic surveys, is remarkable, considering the circumstances under which the maps were made. The scale is identical with that of the detailed maps, and it is probable that the contours were originally drawn for the purpose of serving as a guide for the development of the hachure work on the detailed maps. None of these maps have been published, except that a few lithographic copies of the detailed maps, enlarged to twice the scale of the originals, were prepared and had a limited distribution in a few of the Departments at Washington. The existence of these maps is not generally known, and it is probable that if copies had been available for the use of those interested in the mining properties in the Mount Baker district an inspection would have given sufficient evidence to settle satisfactorily the question whether the mines are in the United States or in Canada.

There is presented herewith an index map showing limits of the detailed and reconnaissance sheets.

There was also deposited by the British Minister in 1871 in the State Department an atlas comprising maps, views, and tables of geographic positions relating to the Northwestern Boundary. The information contained in this atlas is practically the same as that shown on the original maps prepared by the United States officials, except that the British atlas contains ten photographic views of monuments and vistas. With the atlas are tables of geographic co-ordinates, with descriptions of stations. According to these tables there are 161 monuments, marking parts of a boundary line 410 miles in length.



INDEX MAP, SHOWING LIMITS OF UNPUBLISHED DETAILED SHEETS (CONTINUOUS LINES) AND RECONNAISSANCE SHEETS (BROKEN LINES) PREPARED BY THE U. S. NORTHWESTERN BOUNDARY SURVEY, ON FILE IN THE STATE DEPARTMENT, WASHINGTON.

There can be no doubt that the line should be carefully traced and substantially marked throughout its entire length by a joint commission. Estimates for doing this work have been submitted to the State Department, and these estimates include the astronomical determination of the latitude and longitude of a number of additional points, the extension of a system of triangulation along the axis of the line, the running of spirit-levels over the line, the preparation of a topographic map of the territory adjacent to the line, as well as the cutting out and marking of the line by stone and iron monuments, the monuments to be placed at intervals averaging not more than a mile.

A large portion of the country to be traversed is without roads or trails. In fact, the conditions and difficulties at present are not much different from those which existed when the original commission decided that it was not practicable, on account of the difficulties, to establish the line completely.

The summit of the Cascades adjacent to the international boundary is above the timber-line, and immense glaciers lie athwart the line. A short summer comes between the storms of a late spring and those of an early autumn, while the snows of one winter are scarcely melted before they are replaced by those of the next. Turgid and impassable streams, born of the glaciers, flow between precipitous ridges and lofty granite peaks, making long detours necessary to an advance in any direction. On either side of the summit, below the timber-line, is a thick mantle of vegetation, with great firs and cedars growing up from a mass of tangled underbrush. The above are, briefly, the characteristics of the country along and adjacent to the line in the Cascades, and the same difficult conditions exist in a somewhat less degree along the remaining unsurveyed portion of the line. On account of the shortness of the practicable field season, it is believed that at least three or four years would be required to execute the surveys necessary to the proper marking of the line.